

## **REMARKS**

Claims 1-5, 8, 10, 12, 14, 16-23 and 31-34 are pending in the application.

The issues outstanding in this application are as follows:

- Claims 1-5, 8, 10, 12, 14, 17-23 and 31-34 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Jordan (U.S. Patent No. 5,826,369) in combination with Reid (U.S. Patent No. 4,981,495) or Reid (U.S. Patent No. 4,941,968).

### **I. Claims 1-5, 8, 10, 12, 14, 17-23 and 31-34; 35 U.S.C. § 103(a)**

Claims 1-5, 8, 10, 12, 14, 17-23 and 31-34 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Jordan (U.S. Patent No. 5,826,369) in combination with Reid (U.S. Patent No. 4,981,495) or Reid (U.S. Patent No. 4,941,968). The Applicants respectfully traverse.

*Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), controls the consideration and determination of obviousness under 35 U.S.C. 103(a); *KSR Int'l Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 1734-35, 167 L. Ed. 2d 705, 715 (U.S. 2007). The four factual inquires enunciated therein for determining obviousness are: (1) determining the scope and contents of the prior art; (2) ascertaining the differences between the prior art and the claims in issue; (3) resolving the level of ordinary skill in the pertinent art; and (4) evaluating evidence of secondary considerations.

In order to assess the scope and content of the prior art properly, a thorough understanding of the invention must be acquired by studying Applicants' claims and the specification. M.P.E.P. § 2141. Thus, the inquiry begins with construction of Applicants' claims, in which the claims as presented herein are relied upon. Next, when ascertaining the differences between the prior art and the claims at issue, both the invention and the prior art references as a whole must be considered, and *all* claim limitations must be considered when determining patentability of Applicants invention. M.P.E.P. §§ 2141; 2143. When this is properly done in this case, as shown below, it becomes clear that differences exist that preclude obviousness. And finally, the test for obviousness requires identification of a

reasonable basis for combining the claimed elements in the claimed fashion. *KSR*, 127 S. Ct. at 1741; M.P.E.P. §2143. As shown below, this requirement is not met in this case, and no *prima facie* case for obviousness is made.

In *In re Kumar*, the Federal Circuit held that to render a later invention (the presently pending application) unpatentable for obviousness, the prior art (U.S. Patent No. 5,826,369; U.S. Patent No. 4,981,495; U.S. Patent No. 4,941,968) must enable a person of ordinary skill in the field **to make and use the later invention** (the presently pending application). *In re Kumar*, 418 F.3d 1361, 76 USPQ2d 1048 (Fed. Cir. 2005). The present disclosure recites ratio in terms of grams per gram and grams per volume which can enable the prior art, but the prior art can **NOT** enable the present invention because it does not provided enough information to adequately establish the claimed ratios.

The Reid reference teaches alkyl 1,2-dihydroquinoline in 1 to 10,000 parts per million of gasoline, and the Jordan reference discloses a weight per volume percent. The skilled artisan would readily recognize the difference between a weight to weight and a particle to particle ratio. While it is quite possible to convert a weight to weight ratio of known compounds with known masses, it is **not** possible to convert a particle to particle ratio without known masses (in particular the known mass of gasoline). Since gasoline is a mixture with an almost unlimited variation of molar ratio's with an equally unlimited variation of masses for its components, it is not possible to infer or deduce the mass and molar composition of gasoline which is needed for the skilled artisan to calculate the weight to weight ratio.

For example, using the claimed weight to weight ratio (from 20:1 to 1:1 of beta-carotene to 2,2,4-trimethyl-6-ethoxy-1,2-dihydroquinoline with the ratio being express as grams). Specifically, 20 grams of beta-carotene to 1 gram of 2,2,4-trimethyl-6-ethoxy-1,2-dihydroquinoline, the molar ratio (particle to particle ratio) ranges from 10:1 to 1:2. Put another way, for every **ten** beta-carotene particles there is **one** 2,2,4-trimethyl-6-ethoxy-1,2-dihydroquinoline particle which corresponds to the claim limitation "grams of beta-carotene to grams of 2,2,4-trimethyl-6-ethoxy-1,2-dihydroquinoline in the additive is about 20:1" On the other end of the range, for every **one** beta-carotene particles there are **two** 2,2,4-trimethyl-6-ethoxy-1,2-dihydroquinoline particle which corresponds to the claim limitation "grams of

beta-carotene to grams of 2,2,4-trimethyl-6-ethoxy-1,2-dihydroquinoline in the additive is about 1:1.

This sort of calculation is not possible using the Reid disclosure. The Reid reference teaches for ever 1 million particles of gasoline there will be between 1 to 10,000 particles of alkyl 1,2-dihydroquinoline. There are two issues that prevent the appropriate calculation: (1) what is the mass of the alkyl 1,2-dihydroquinoline and (2) what is the mass of the gasoline. Since the term alkyl is a general term, the mass of the alkyl 1,2-dihydroquinoline can to be determined until the alkyl group is defined. Since this group is not defined, it is not possible to calculate the weight (mass) of the alkyl 1,2-dihydroquinoline.

Additionally, the mass of the gasoline is not described in a reasonable way such that the skilled artisan can calculate the mass. To complicate the issue, gasoline is a mixture of chemical components in various amounts with various masses. The amount of each component and the mass of each component must be given in order to calculate the mass of 1 million particle. Since, the chemical components and the amounts of each component present in the gasoline has not been provided, it is NOT possible to calculate the mass of 1 million particles of gasoline which would be necessary to determine the mass.

The Reid reference and the Jordan reference can not be combined to arrive at the present invention. The Examiners assertion that the ranges expressed in the combination of Reid and Jordan is fundamentally flawed. The Reid reference teaches for every 1 million particles of gasoline there will be between 1 to 10,000 particles of alkyl 1,2-dihydroquinoline. This establishes a molar ratio. Molar ratio's do not account for the weight (mass) of the particles; it only establishes a particle to particle ratio irrespective of weight or volume. A classic example is 55 grams of iron (molecular weight 55.85) to 1 gram of hydrogen (molecular weight 1) give a weight to weight ratio of 55:1, but 55 grams of iron to 1 gram of hydrogen give a particle to particle ratio of 1:1 (for every particle of iron there is a particle of hydrogen).

Claims 1 and 20 recite the limitation of "wherein a ratio of grams of beta-carotene to grams of 2,2,4-trimethyl-6-ethoxy-1,2-dihydroquinoline in the additive is from about 20:1 to about 1:1", and claims 2 and 21 recite the limitation of "wherein a ratio of a first additive to grams of a stabilizing compound in the additive is from about 20:1 to about 1:1." As the

Examiner states on page 2 of the Action, the Jordan reference fails to teach 2,2,4-trimethyl-6-ethoxy-1,2-dihydroquinoline or a stabilizing compound. The Examiner relies on the Reid reference for this teaching. The Reid reference fails to teach beta-carotene. Neither the Jordan reference, the Reid references or the combination of the Jordan and Reid references teach the limitation of “wherein a ratio of a first additive (beta-carotene) to grams of a stabilizing compound (2,2,4-trimethyl-6-ethoxy-1,2-dihydroquinoline) in the additive is from about 20:1 to about 1:1” as recited in the independent claims. Also, neither reference provides either an implicit or explicit teaching, suggestion or motivation for combining a stabilizing compound (2,2,4-trimethyl-6-ethoxy-1,2-dihydroquinoline) with a first additive (beta-carotene). The combination of Jordan and Reid does not account for *all* claim limitations. Therefore, the combination of the Jordan and Reid references *does not* support a *prima facie* obviousness rejection, and the Applicants respectfully request that the rejection be removed.

If an independent claim is non-obvious under 35 U.S.C. § 103(a), then any claim depending therefrom is by definition non-obvious. Applicant respectfully submits that claims 3-5, 8, 10, 12, 14, 17-19, 22, 23 and 31-33 depend at least in part from independent claims 1, 2, 20 or 21. Accordingly, Applicant respectfully requests reconsideration and withdrawal of the outstanding rejection of claims 1-5, 8, 10, 12, 14, 17-23 and 31-34 under 35 U.S.C. § 103(a) as being unpatentable over Jordan (U.S. Patent No. 5,826,369) in combination with Reid (U.S. Patent No. 4,981,495) or Reid (U.S. Patent No. 4,941,968).

## **II. Conclusion**

In view of the above, applicant believes the pending application is in condition for allowance.

The fees for a Request for Continued Examination (RCE) under 37 C.F.R. § 1.114 and a Petition for Extension of Time for five months are being submitted with this response. Applicant believes no other fee is due; however, if a fee is due, please charge our Deposit Account No. 06-2375, under Order No. HO-P03708US0 from which the undersigned is authorized to draw.

Dated: May 3, 2010

Respectfully submitted,

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